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ABSTRACT

The purpose of this study was to illustrate the use of an interaction analysis in assessing specific objectives of the Demonstration and Research Center for Early Education (DARCEE) preschool program. A time sampling technique was used to monitor the interactions of 8 children (3 males, 5 females) in two settings in the DARCEE Head Start classroom. Information pertaining to task orientation, verbal content, and use of props within an interaction, in addition to the modality (verbal, physical, gestural) and affect (positive, neutral, and negative) of both initiator and respondent was recorded on a checklist. A series of analyses were performed to determine effects between and within settings on the frequencies and patterns of interactions for three initiator-respondent pairings (child-child, child-teacher, teacher-child). A number of results are presented and discussed. The use of interaction analysis appeared to be successful in achieving the goal, providing systematic assessment of the application of specific DARCEE principles in the classroom. (Author/MS)

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Interaction Analysis: A Procedure for Assessing the DARCEE Preschool Program[1]

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The purpose of this study was to illustrate the use of an interaction analysis in assessing specific objectives of the DARCEE preschool program. A time sampling technique was used to monitor the interactions of 8 children (3 males, 5 females) in 2 settings in the DARCEE Headstart classroom. Information pertaining to task orientation, verbal content, and use of props within an interaction, in addition to the modality (verbal, physical, gestural) and affect (positive, neutral, and negative) of both initiator and respondent was recorded on a checklist. A series of analyses were performed to determine effects between and within settings on the frequencies and patterns of interactions for 3 initiator-respondent pairings (child-child, child-teacher, teacher-child).

Interaction Analysis: A Procedure for Assessing the DARCEE Preschool Program

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The present study of interaction in the classroom can be viewed as a preliminary attempt to introduce systematic procedures for change in the DARCEE preschool program. This year the preschool has been undergoing a process of reevaluation of its objectives and of its methods for attaining those objectives. Two obvious prerequisites for planned program change are (a) a detailed description of the present operation of the classroom, and (b) precisely defined criterion behaviors for the specified objectives. A knowledge of what behaviors occur and their approximation to the criterion behaviors, in addition to an understanding of some of the functional relationships existing between the criterion behaviors and those other behaviors occurring (as stimuli) in the classroom, ideally should provide the basis for decisions on program change. The purpose of the present research was to choose some aspect of the preschool program, and to systematically assess its actual operation in the classroom. The investigation focused on defining the patterns of interaction (teacher to child, child to child, and child to teacher) in two classroom settings, small group and selected free choice, both of which occur in a typical DARCEE day, in order to compare the kinds of interaction occurring within and across these two settings.

Small group and selected free choice are two daily activities in the DARCEE schedule. In small group each teacher works with her group of six to ten children on a cognitively oriented task chosen by the teacher. The teacher directs the activity and provides both group and individualized

instruction. There were two procedures used in selected free choice during the 1971-1972 school year. First, the teachers chose four activities as alternative choices for the children. Later in the year, 6 of the 18 children, on a rotating basis, each chose an activity; these choices were announced by the teachers as the alternative activities for all the children. Each child was free to change to another activity at any time during the selected free choice period.

The function of an interaction analysis is to define patterns of reciprocal behavior, rather than behaviors occurring in relative isolation. Interaction analysis can integrate both the situational and the behavioral context of an individual's behavior. Emphasis can be placed on: (a) the response alone or in relation to the preceeding behavior, (b) the initiation alone or in relation to the consequent behaviors, (c) on specified initiator-respondent behaviors as a unit, or (d) each of these in relation both to the setting and to the initiator-respondent pair.

The principles of the DARCEE model (Brown, Dokecki, O'Connor, & Stinson, 1971) suggest that certain patterns of teacher to child, child to child, and child to teacher interaction should be characteristic of the classroom. While the DARCEE model emphasizes the importance of highly teacher-directed activities, it also stresses the role of the teacher in encouraging the development of the child's self-initiated verbal behavior. Reinforcement is to be given for appropriate (a) spontaneous information seeking (task-relevant questions) and statements oriented to the activity, and (b) quiet listening or attending behavior. To determine if this approach had actually been implemented, a knowledge of the relative percentage of occurrence of teacher and child as initiator-respondent, the situational context, and the behavioral attributes of the initiation and the response was required.

Small group (teacher as director) should be characterized by more teacher to child than child-initiated interactions; in selected free choice (teacher as resource), the pattern was expected to reverse. A more in depth analysis of the teacher initiated interactions would indicate the proportion of questions (to elicit a verbal or other behavioral response) to statements (either accepted with spontaneous verbal statements or passively attended to), and to demands (requiring immediate compliance). The interest was in determining the relationship between the types of verbal behavior and the response that followed, as well as the relative frequencies of each. An analysis of child-initiated behaviors to the teacher for information seeking, statements, or demands or whether they were treated as disruptions and rejected or ignored. The expectation was that more child-initiated interactions would occur in selected free choice than in small group because the situation was more appropriate to individual interactions by the child to the teacher or to other children.

The DARCEE preschool program stresses the development of cognitive skills in the children. To achieve this goal, the teacher's emphasis is on encouraging task-related behavior by the children. One purpose of the present study was to assess the actual task-relatedness in the interactions of both the teacher and children in relation to the setting and to the individuals involved in the interactions. The specific questions pertaining to this issue were: (a) would the child show the same degree of task-related behavior as the teacher, (b) would this emphasis on the task differ between small group (activity chosen by the teacher) and selected free choice (activity chosen by the child), or between child to teacher and child to child interactions, and (c) would the teacher respond to nontask initiations as disruptions (ignored or rejected) differently in small group

vs. selected free choice.

One of DARCEE's concerns is to avoid dichotimizing the child's life into nonschool vs. school matters. The attempts at integrating school with other aspects of the child's environment would be reflected in the teacher's use of nonschool examples, references to persons and materials either not present in the classroom or brought in from home. While it appears that the majority of this type of integration occurs in large group (a period for the entire class, and structured on a unit approach), its use in selected free choice and small group was investigated. This was done to determine if this integration attempt would occur more frequently in the more planned interactions of small group or in the more isolated incident-oriented interactions in selected free choice. The concern was not only with the teacher's behavior, but also with the child's references to events, materials, or persons outside of the classroom in his own attempt to make use of both school and nonschool matters in school tasks.

According to DARCEE (Brown, et al., 1971) the modality (verbal, physical, or gestural) and the associated affect (positive, negative, or neutral) of the teacher's behavior are important factors in the communication of any material, cognitive or social. The use of concrete objects, rather than abstractions, is also seen as an important factor in developing both communication and cognitive skills. Therefore, any description of the DARCEE classroom would have to consider these factors.

The purpose of the present research was to assess the application of an interaction-analysis approach as a standard research procedure for use in the DARCEE classroom.

Method

Subjects

All observations were conducted during the 1971-1972 academic year in the DARCEE Head Start Center, a delegate agency of Nashville Head Start, Nashville, Tennessee, through the Metropolitan Action Commission, a community action component of the Office of Economic Opportunity. The population of the center was drawn from low-income portions of areas near the Peabody College Campus, and an area in East Nashville, which had a waiting list of children not being served by Head Start. Eighteen children (8 males, 10 females) were enrolled in the center at the time of the spring observations.

In the DARCEE approach children are divided into groups for small group activities according to their cognitive ability, maturation level, and social emotional factors. The group of children maintaining the closest proximity to the observers was selected in order to optomize the visibility and audibility of the children's interactions. This group, ranked as the most advanced group of the three thus constituted groups, was composed of eight children (3 males, 5 females), whose mean age was 5 years, 9 months. Occasionally, children from one of the two other groups would be placed in this group due to the absence of a staff member.

Procedure

A time sampling technique was used to monitor interactions of the observed child (target child) during 10-second intervals (epochs) separated by 10-seconds of time-out for coding. An audio tape recording of tones signaled the onset and termination of each 10-second interval. Only the children assigned to the most advanced small group were observed. These children were randomly ordered (with replacement), each serving as a target

child for 10 successive epochs. At least 100 seconds of total observation time per child per session were collected.

Interactions were sampled in two settings: small group and selected free choice. The total number of observational sessions from small group and selected free choice were 12 and 13 days, respectively. Table 1 summarizes characteristics of the group and settings and the dates children were observed.

Two observers each recorded behaviors of different target children simultaneously. Observations began at the commencement of the activity and ended at the announcement of "clean-up time," which terminated the activity. Only interactions in which the target child participated were coded. The code was structured to allow for two separate initiations of interaction per 10 second interval. Names of the initiator(s) and respondent(s) were entered for each epoch. If no interaction occurred during the epoch, a slash was entered in the first column. Refer to Figure 1 for an example of the recording sheet.

Reliability was established using an agreement index for five 100 successive seconds randomly dispersed throughout the observations, i.e., when one child was randomly chosen by both observers during the same observation period. The overall reliability was 86.3% (refer to Table 2 for reliabilities of specific categories).

The behavior categories were adapted from those used by Vietze (1971):

INITIATOR - individual(s) performing the first action of the interaction

RESPONDENT - individual(s) to whom the initiator's behavior is directed

VERBAL INITIATE

Question (Q)
Statement (S)
Demand (D)

ORIENTATION

Task - verbalization, vocalization, gesture, or physical act pertaining to the task in which the target child is participating

Non Task - verbalization, vocalization, gesture, or physical act not related to the task in which the target child is participating

VERBAL CONTENT

School (S) - content of verbalization related to activities occurring within the school setting

Nonschool (N) - content of verbalization related to activities not occurring within the school setting, e.g., home, community

PHYSICAL (P) - physical contact made between target child and individual(s)

Positive (+) - pat, hug, tickle

Negative (-) - beat, kick, slap, punch, push

Neutral (0) - accidental or incidental contact between target child and individual(s)

GESTURE (G) - facial expressions and bodily movements which do not bring the target child in contact with individual(s)

Positive (+) - smile, hand clap, wave, head nod

Negative (-) - frown, threat, throw arms or legs, head shake

Neutral (0) - point, reach

PROP - objects which are part of an interaction or serve to initiate an interaction

VERBAL RESPONSE - verbalization by respondent directed to initiator

ACCEPT - verbal, physical, or gestural acknowledgment of behavior of initiator

Positive (+) - receiving behavior of initiator and agreeing with its content

Negative (-) - receiving behavior of initiator and disagreeing with its content

Neutral (0) - acknowledgment of behavior of initiator

REJECT - active refusal to receive behavior of initiator

SUBMIT - to yield to negative gestural and/or physical actions of initiator

IGNORE - failure to orient or respond to behavior of initiator

ATTEND - orienting to behavior of initiator

Results

The following section does not attempt to analyze all of the data collected in the present study. This section should be viewed as a series of

concrete illustrations of the use of an interaction analysis in providing a systematic technique for classroom assessment.

The data were classified on three dimensions: (a) teacher/child as initiator or respondent, (b) the content of the initiation and response, and (c) the setting or framework in which the interaction occurred (small group or selected free choice). The initiator-respondent dimension had three categories: child to child, child to teacher, and teacher to child. The analysis was performed by a series of two and three factor analyses of variance with repeated measures on all factors. With the exception of total percentages, a subject's scores for each analysis were derived by (a) summing the number of occurrences (over all observation days) of those behaviors to be analyzed for each of the Setting (2) X Initiator-Respondent Pair (3) combinations (6 levels, i.e., small group -- child to child, child to teacher, teacher to child; selected free choice -- child to child, etc.), and (b) dividing each sum by the total number of the subject's interactions occurring within the level.[3] The scores for each child derived in this manner then represent the relative percentages of occurrence of the specified behavior variables within each of the six situational-pairing levels. A subject's score for the total percentage of each pairing was derived by dividing the number of occurrences of each category of Initiator-Respondent Pair in the two settings by the total number of the subject's interactions in the setting. Table 3 presents the mean relative percentages of each variable analyzed by Setting and Initiator-Respondent Pair.

The major analysis of the data was performed at two levels of complexity. The first dealt with the relationship of both Setting and Initiator-Respondent Pair to either a specified behavior or dimension of the interaction by the initiator, or the respondent, or to a specified sequence of initiation and response behavior. The second considered the effects of Setting and Initiator-Respondent Pair on the occurrences of different initiations, or responses, or responses paired with different initiations. The first level includes analyses of the effects of Setting and Initiator-Respondent Pair on the relative percentage of occurrence of (a) a task-related initiation, (b) the response--verbal accept, and (c) the behavior unit of verbal initiation followed by a verbal response. The second level includes analyses of the effects of Setting and Initiator-Respondent Pair and (a) type of Verbal Initiation (question, statement, or demand), (b) Type of Response (accept, attend, reject, ignore, or submit), and (c) Type of initiation followed by the response--accept on the relative percentages of occurrence of the behaviors under consideration. Those variables not analyzed in this manner are presented in a separate section.

Significance level was set at $p \leq .05$, and all further references to a significant main, simple, or interaction effect indicate that this significance level was reached.

Setting by Initiator-Respondent Pair

Total percentages. The analysis for percentage of total interactions for each Initiator-Respondent Pair in each setting revealed a significant Setting X Initiator-Respondent Pair interaction ($F = 19.38$, 2/14 df). Therefore, in order to examine the simple effects of Setting, three separate analyses were performed, one for each Initiator-Respondent Pair in the two

settings. There was no significant Setting effect in the relative percentage of child to teacher interactions. There were significantly greater relative percentages of child to child interactions in selected free choice than in small group (t = 5.06, 7 df), and of teacher to child in small group than in selected free choice (t = 4.72, 7 df).

The prediction that the percentage of child-child interactions in relation to other interactions would be greater in selected free choice (44.7) than in small group (9.9) was confirmed. As expected, the relative percentage of teacher to child interactions decreased from small group (76.9) to selected free choice (36.0). However, the low percentage of child to teacher interactions in small group (13.0) and in selected free choice (17.5) was not expected. The children were not using the teacher as a resource in either setting as fully as predicted from the DARCEE operational principles. The percentage of teacher initiations exceeded those of the child in interactions involving a teacher and a child in both settings, and there was no significant increase in child initiations to the teacher from small group to selected free choice.

The high directiveness of the teacher in small group was consistent with the DARCEE model, but as stated, was also maintained in selected free choice.

Initiator variables. There was no significant Setting effect for the first three initiator variables analyzed: verbal initiation, task orientation, and prop usage. However, all three analyses indicated a significant Initiator-Respondent Pair effect (F = 5.84, F = 4.05, F = 11.17, for verbal initiate, task, and prop; respectively, with 2/14 df for each), and no significant Setting X Initiator-Respondent Pair interaction. The teacher-initiated interactions had the greatest percentage of both task involvement and verbal behavior by the initiator, while the child-child interactions in

small group had the lowest percentages of these variables (see Table 3).

The absence of either a significant setting effect or an interaction indicates that, for these variables, the behavioral orientation of each Initiator-Respondent Pair does not differ significantly between small group and selected free choice. The decrease in teacher direction in selected free choice is not followed by a decrease in percentage of task orientation, prop usage, or verbal initiations in the interactions. Inspection of the mean percentages in Table 3 for child to child interactions, indicates that the percentage of all three variables increased from small group to selected free choice. Child to child interactions in selected free choice were more oriented to the task (84.4%), to usage of props (56.9%), and had a greater percentage of verbal initiation (75.6%) than those in small group (55.3, 31.0, and 67.9%; for task, prop, and verbal initiate, respectively). Thus it appears that about one-half of the child to child interactions in small group were not appropriate to the situations, and served as potential distractions rather than as contributions to the task.

Respondent. There was a significant Setting X Initiator-Respondent Pair interaction for the response--verbal accept ($F = 3.63$, 2/14 df). Therefore, one analysis for the simple effects of Initiator-Respondent Pair was conducted for small group and one for selected free choice. The results revealed no significant difference between pairs in selected free choice, but a significant Initiator-Respondent Pair effect ($F = 11.98$, 2/14 df) was found for small group. In small group, the teacher's responses to a child's initiation had a greater percentage of verbal accepts (53.7), than did the children's responses either to a teacher's (10.6) or a child's (18.8) initiation. While this analysis indicated that approximately half of the initiations by the child to the teacher in small group were verbally accepted (e.g., by praise,

or by expanding on the child's contribution), the expected result of this reinforcement should be a substantial percentage of child initiations to the teachers. As noted earlier, the relative percentage of child-teacher interactions in small group was low (13% of total small group interactions).

Initiation-response. The analysis of the behavior sequence of verbal initiation-verbal response revealed a significant Setting X Initiator-Respondent Pair interaction ($F = 4.11$, 2/24 df). The analysis of simple Initiator-Respondent Pair effects indicated no significant effect in selected free choice, but a significant difference between pairs in small group ($F = 9.29$, 2/14 df). In small group, the child to teacher interactions had the highest percentage of verbal-verbal exchange (49.8); the teacher to child the lowest (11.9). The same pattern was evident in selected free choice but was less pronounced. The percentages of verbal-verbal interactions increased for both teacher to child and child to child interactions, while the percentage of child to teacher verbal-verbal exchanges decreased from small group to selected free choice.

In both settings, the over-all low percentage of verbal exchange and verbal accepts when a child was the respondent reflects a less active verbal participation by the child than by the teacher. The small group setting, in particular, was very highly teacher directed, both in terms of a high percentage of teacher initiation, and of active verbal responding to the child's initiations. The child was much more verbally passive than the teacher, with a low percentage of initiations, and a low percentage of verbal responding to the teacher or to a child. Selected free choice had a higher percentage of child-child interactions but the teacher was still involved in approximately 55.5% of the interactions.

Setting by initiator-respondent pair by behavior category.

While an analysis of single behaviors does provide a partial description of the classroom, a more adequate analysis would be to consider several behavioral variables simultaneously. The various relationships between the behaviors as well as between the settings and initiator-respondent pairs could be explored. These analyses were done through the use of three factor repeated measures analyses of variance, Setting X Initiator-Respondent Pair X Type of Behavior.

Initiator behaviors. For the analysis of Type of Verbal Initiation, those initiations involving questions and statements were pooled with the question category, and statements and demands, or questions and demands with the demand category. This analysis revealed no Setting or Initiator-Respondent Pair effect and no interactions. There was a significant main effect for Type of Verbal Initiation ($F = 54.95$, 2/14 df) and further inspection of the mean percentages (collapsed over Setting and Initiator-Respondent Pairs) indicates that statements had the highest relative percentage of occurrence (52.67, 14.96, 15.25, for statements, questions, and demands, respectively). Although nonsignificant, the differences between settings and initiator-respondent pairs were seen as descriptive of the patterns of classroom interaction and therefore warrant some discussion.

The relative percentage of questions in teacher initiations was higher in small group (28.3) than it was in selected free choice (14.9); teacher demands had a higher percentage in selected free choice (22.6) than in small group (9.9). The reversal of percentages for questions and demands between the two settings suggests that the teacher was promoting more verbal exchanges of the children in small group than in selected free choice; and that

the teacher was more oriented towards restrictive situation maintenance in selected free choice than in small group. There was a higher percentage of both questions and demands in selected free choice than small group for both child to child and child to teacher interactions (child to child: questions 2.1-10.3, demands 10.0-15.9; child-teacher: questions 13.0-21.3; demands 13.4-19.8; for small group-selected free choice, respectively). The shift to a greater relative percentage of both questions and demands than statements reflects the more actively engaging role that the child must play in selected free choice than in small group in selecting activities, in dealing with other children in the absence of a teacher, and in procuring the teacher's attention for approval or for meeting specific needs. The child's interactions with other children were then directed to accomplishing a task chosen by both, and were therefore more frequently task oriented, than in small group where the task was chosen and directed by the teacher.

Initiations by response. A three factor repeated measures analysis of variance (Setting X Initiator-Respondent Pair X Type of Verbal Initiation Accepted/Attended) revealed no significant differences between settings but did indicate the presence of an Initiator-Respondent Pair X Type of Verbal Initiation-Accepted/Attended interaction ($F = 4.60$, 4/25 df). The analysis was then collapsed over settings and split on the Initiator-Respondent Pair factor and significant differences were found within each Initiator-Respondent Pair on Type of Verbal Initiation-Accepted/Attended (child to child: $F=26.00$, 2/14 df; child to teacher: $F=13.70$, 2/14 df; teacher to child: $F= 159.21$, 2/14 df). Inspection of the means for each

pair (collapsed over settings) revealed the source of the interaction. While all three pairs had the highest relative percentage of statements (34.63, 31.69, 52.06; child to child, child to teacher, and teacher to child, respectively), the child to child interactions had a greater percentage of demands (7.75) than questions accepted or attended (3.06); the child to teacher a greater percentage of questions (10.00) than demands accepted or attended (5.00), and the teacher to child approximately the same relative percentage of demands (9.63) and questions (8.63) accepted or attended. These results suggest a contrast in initiation-response mode between the teacher and the children. The teacher was more responsive to questions than to demands from the children. The children were more responsive to demands than questions from other children and about equally responsive to both questions and demands from the teacher. However, children had not yet learned to use questions and demands differentially when directing an initiation to the teacher or to children, as seen in Table 3.

Setting by initiator-respondent pair by response. There were two significant interactions in the analysis of Setting X Initiator-Respondent Pair X Response (accept, attend, reject, ignore, submit): Setting X Response ($F = 3.78$, 2/28 df), and Initiator-Respondent Pair X Response ($F = 15.28$, 8/56 df). The analysis was therefore split on the Response factor to obtain the simple effects of Setting and of Initiator-Respondent Pair on each of the five response categories. There was no significant difference between pairs for the response--accept, but there was a significant Setting effect ($F = 7.47$, 1/7 df). The relative percentage of accepting behavior was greater in selected free choice than in small group for all pairs. The greatest percentage increases in accepting were for child to child and teacher to child, again reflecting the more active participation of the child in selected free

choice than in small group. This is again seen in the analysis of the response-attend, a more passive response than accept. There was a significant Setting X Initiator-Respondent Pair interaction (F = 5/35, 2/14 df). This interaction reflected the decrease of the child's passive attending behavior from small group to selected free choice and the overall low percentage of the teacher's attending in both settings. As the child's attending decreases, his active acceptance increases. There were no significant effects or interactions for the response--reject, and rejection maintained a low percentage in both settings. Inspection of the means does reveal a slight increase in rejecting from small group to selected free choice. This increase probably reflects the less structured nature of the situation in selected free choice than in small group.

The analysis of the response--ignore revealed no significant Setting effect or interaction, but did indicate a significant Initiator-Respondent Pair effect (F = 6.21, 2/14 df). The relative percentage of ignoring by a child (means collapsed over setting) was 9.75 to a teacher-initiated interaction and 17.06 to a child-initiated interaction. The highest relative percentage of ignoring was by the teacher in response to a child's initiation (28.44). The high percentage of ignoring as the teacher's response was not predicted from the DARCEE principles. The teacher would be expected to be alert to the child's behavior in both settings, and to either actively redirect a nontask initiation through praising another child's behavior (i.e., attending) or to expand on the child's task-related contribution.

There was a significant Setting X Initiator-Respondent Pair interaction for the response--submit (F = 6.36, 2/14 df). The mean relative percentage for submit was low for all pairs; the teacher had a submit response percentage of 0.0 for both settings, the child a percentage of 0.0 in small

group and 6.88 in selected free choice when another child initiated; and 0.25 in small group and 1.0 in selected free choice when the teacher initiated. As expected, when there was the less structured situation of selected free choice the child to child interactions would be characterized by more open conflict, and therefore, more demanding and submissive behavior than in small group. The teacher, however, would not be expected to use such threatening behavior, and the low percentage of submission in interactions involving the teacher confirmed this prediction.

Integration of school and nonschool

No analysis was performed on the relationship of task or nontask oriented interactions to a nonschool or school context because of the low frequency of reference to nonschool-related events (2.1% of the interactions). Therefore no attempt was made to determine their task relatedness. This finding was contrary to the prediction of an attempt to maintain strong relationships between school and nonschool events, materials, etc. Although, as noted in the introduction, this integration takes place primarily in the large group setting (i.e., the neighborhood unit), a much greater usage of nonschool examples introduced both by the teacher and the children would be more consistent with DARCEE operational principles.

Summary

A brief summary of the results of the present study illustrates the use of an interaction analysis in describing the actual operation of the DARCEE classroom. As noted earlier, some of the results were consistent with the DARCEE principles, and others were not anticipated. The final evaluation of these results will have to be made by those agents responsible for implementing and changing the DARCEE preschool program.

The teacher encouraged approximately one-half of the child's verbal initiations; however, the children remained relatively passive in the small group setting, in both verbally responding to a teacher's or a child's initiations and in initiating an interaction. In selected free choice the children's initiations were directed primarily to other children, rather than to a teacher, and the teacher was the most frequent initiator in interactions involving a teacher and a child. The percentage of questions and demands by the children was greater in selected free choice than in small group and reflected the child's more active and independent role in making choices, in cooperating with other children in the absence of a teacher, and in actively seeking out the teacher. This active role was also demonstrated by the decrease in passive attending and the increase in both active verbal responding and in task orientation from small group to selected free choice. There was a relatively high percentage of a teacher's ignoring a child's initiation and infrequent reference was made to nonschool events and materials.

The approach used in the present study, interaction analysis, does appear to be successful in at least one goal, that of providing a systematic assessment of the application of specific DARCEE principles in the classroom. Its feasibility as a technique for providing the rationale for program change still has to be confirmed. In general, further exploration of the potential need

for, and applications of interaction analysis in the DARCEE program seems warranted.

References

Brown, C. B., Dokecki, P. R., O'Connor, M., & Stinson, J. The DARCEE approach to preschool education: Current status and implications for model installation. Unpublished manuscript, DARCEE, George Peabody College, 1971.

Vietze, P., Strain, B., & Farber, A. Peer interaction observation scale. Unpublished manual, George Peabody College, 1971.

Footnotes

[1]A second draft of this research report is presently being prepared for publication as a DARCEE report, and will include a more complete analysis of the data and implications for future program change.

[2]The investigators wish to express their appreciation to Kathy Green and Margaret Thompson, lead teachers in the DARCEE classroom, for their cooperation, and especially to Maxine Schoggen, for her support and assistance during the planning and execution of the present research.

[3]As an example, if child A had 15 verbally initiated child to teacher interactions and a total of 30 child to teacher interactions in small group, the relative percentage of verbal initiate for child A in small group was derived as follows,

$$\text{Small group: } \frac{\text{number of child to teacher verbal initiate for A} - 15}{\text{total number of child to teacher for A} - 30} = 50\%.$$

Target child:

Date: Time: Activity:

EPOCH	INITIATOR	QUESTION STATEMENT DEMAND	TASK (S,N)	NON TASK (S,N)	GESTURE PHYSICAL	PROP	RESPONDENT	VERBAL	GESTURE PHYSICAL	PROP	ACCEPT	REJECT	SUBMIT	IGNORE	ATTEND
1.															
2.															
3.															
4.															
5.															
6.															
7.															
8.															
9.															
10.															

Fig. 1. Observation sheet used for recording behaviors (refer to text for explanation of categories).

TABLE 2

Reliabilities of Categories

Category	Reliability
Initiate	.89
Verbal	.64
Task	.83
Physical	.98
Gesture	.94
Prop	.86
Respondent	.84
Verbal	.95
Physical	1.00
Gesture	.98
Prop	.95
Response Category	.71
Accept, attend, reject, ignore, submit	

TABLE 1

Characteristics of the Groups and Settings

Setting/Date	Number of Target Children	Teacher	Activity
Small group			
4/10	3	A	Story
4/14	3	A	Taste discrimination
4/24	6	B	Drawing human heads
4/28	5	B	Telling time
5/1	6	B	Discovery board
5/2	7	B	Classification game
5/4	5	B	Story
5/5	7	B	Tracing alphabet letters
5/8	6	B	Parquetry blocks
5/9	7	B	Shape and color discrimination
5/11	6	B	Colored cubes
5/16	8	B	Recognition game
Selected free choice			
4/10	7	A,B	Listening station, housekeeping center, dolls, shapes and paste, crayons and paper, interest center, telephones, hammer and nails, magic markers
4/12	6	A,B	Listening station, puzzles, magic markers, doctor's office, Three Bear drama, housekeeping center
4/14	4	A,B	Listening station, doctor's office, clay, books, magic markers, Three Bear drama
4/18	6	A,B	Crayons and paper, housekeeping center, listening station, books, puzzles, doctor's office
4/24	7	A,B	Doctor's office, magic marker, puzzles, books, tiles, clay
4/25	5	A,B	Magic mirror records, books, puzzles, crayons and paper, doctor's office, housekeeping
4/28	5	A,B	Crayons and paper, records, clay, puzzles, listening station, books
5/1	5	A,B	Magic mirror records, clay, electric train set, wooden train set
5/2	3	A,B	Listening station, magic mirror records, puzzles, crayons and paper, books, doctor's office
5/8	4	A,B	Houses and colored blocks, records, chalkboards, hammer and nails, telephones, housekeeping center
5/9	2	A,B	Housekeeping center, chalkboards, books, easel painting, listening station, D-sticks
5/15	4	A,B	Listening station, housekeeping center, unit blocks, chalkboard, painting, doctor's office

TABLE 3

Mean Relative Percentages of Behavior Categories for Each Initiator-Respondent Pair Within Settings

Category	Small group[a]			Selected free choice[b]		
	Child to child	Child to teacher	Teacher to child	Child to child	Child to teacher	Teacher to child
Verbal initiate	67.9	84.1	99.8	75.6	77.3	93.3
Question (Q)	2.1	10.0	14.9	10.3	12.1	9.4
Statement (S)	55.5	57.8	61.8	48.8	36.3	56.0
Demand (D)	10.0	11.6	7.6	14.4	10.9	16.9
Question-statement	0.0	3.0	13.4	0.0	9.1	5.5
Statement-demand	0.0	1.8	2.3	1.5	8.9	5.8
Question-demand	0.0	0.0	0.0	0.4	0.0	0.0
Task	55.3	73.0	94.8	84.4	80.3	91.9
Prop	31.0	36.1	75.3	56.9	46.9	68.6
Verbal response	20.8	56.6	11.5	24.5	29.0	15.1
Response category						
Accept	46.3	57.4	31.1	65.3	59.6	53.5
Attend	10.4	2.6	57.3	7.1	0.0	30.0
Reject	7.3	2.8	1.8	9.4	7.1	3.6
Ignore	23.5	36.0	7.9	10.6	20.9	11.6
Submit	0.0	0.0	0.3	6.9	0.0	1.0
Verbal response/ accept	18.8	53.8	10.6	18.1	29.0	14.4
Question accept/ attend	2.1	10.0	11.9	4.0	11.3	5.4
Statement accept/ attend	31.3	35.3	55.8	38.0	28.1	48.4
Demand accept/ attend	7.6	4.4	6.5	7.9	5.6	12.8
Percentage of total interactions	9.9	13.0	76.9	44.7	17.5	38.0

[a]Based on 63% of the total epochs observed.
[b]Based on 53% of the total epochs observed.